What is claimed is :

1   1. A controller employed in a data recorder to control interruption and restart of

2   recording data, wherein the data recorder records on a recording medium data stored in a

3   buffer memory by emitting a laser beam against the recording medium, the laser beam

4   being generated at a high level and a low level, wherein the laser beam at the relatively

5   high power level forms a recording pit on a recording layer of the recording medium and

6   the laser beam at the relatively low level does not form a recording pit on the recording

7   layer of the recording medium, the controller comprising:

8   a buffer underrun determination circuit for determining whether or not the buffer

9   memory is in a state in which buffer underrun may occur based on the amount of data

10 stored in the buffer memory;

11   an address memory for storing at least one of an address of the recording medium

12 and an address of the buffer memory when data recording on the recording medium is

13 interrupted, each address indicating a location of data when the recording interruption

14 occurred;

15   a synchronizing circuit for sequentially reading the data recorded on the recording

16 medium prior to the recording interruption and the data stored in the buffer memory prior

17 to the recording interruption and synchronizing the recorded data and the stored data

18 based on a synchronizing signal of a subcode;

19   restart circuitry for restarting data recording on the recording medium based on

20 the address stored in the address memory and;

21   interrupt control circuitry for interrupting data recording if the laser beam is

22 generated at the relatively low power level when the buffer underrun determination

23 circuit determines that the amount of data in the buffer memory may become null and

24 cause the buffer memory to become empty.

1

2   2. The controller according to claim 2, wherein the data includes synch pattern

3   data, the laser beam is generated at the relatively low power level and the relatively high

4   power level in accordance with the synch pattern data, and the interrupt control circuit

5   interrupts data recording when the laser beam is generated at the relatively low power

6   level in accordance with the synch pattern data.

7

8   3. The controller according to claim 2, wherein the data is recorded in the

9   recording medium in sector units, each sector including sector address data, and wherein

10   the address memory stores the sector address data where the recording interruption

11   occurred.

12

13   4. A controller for a data recorder, wherein the data recorder records data on a

14   recording medium by emitting a laser beam against the recording medium, the controller

15   comprising:

16   a buffer underrun determination circuit for determining whether or not the buffer

17   memory is in a state in which buffer underrun may occur based on the amount of data

18   stored in the buffer memory;

19   a laser drive circuit, which controls the power level of the laser beam; and

20   an interrupt control circuit for continuing recording when the buffer memory is in

21   a state in which buffer underrun may occur and interrupting the recording operation when

22   the laser beam is generated at the low power level.

23

24   5. A method for interrupting data recording in a data recorder to prevent the

25   occurrence of a buffer underrun error, wherein the data recorder records data on a

26   recording medium by emitting a laser beam against the recording medium, the method

27   comprising:

28   determining whether or not a buffer memory of the data recorder is in a state in

29   which buffer underrun may occur based on the amount of data stored in the buffer

30   memory;

31   continuing recording when a predetermined state is detached; and

32   interrupting the recording operation when the buffer memory is in a state in which

33   buffer underrun may occur and the laser beam is generated at the low power level.

34

35   6. A method for interrupting and restarting data recording in a data recorder to

36 prevent the occurrence of a buffer underrun error, wherein the data recorder records on a

37 recording medium data stored in a buffer memory by emitting a laser beam against the

38 recording medium, the method comprising:

39   determining whether or not the buffer memory is in a state in which buffer

40 underrun may occur based on the amount of data stored in the buffer memory;

41   interrupting data recording if the laser beam is generated at a low power level

42 when the buffer memory is in the state in which buffer underrun may occur;

43   storing in an address memory an address of the recording medium when data

44 recording on the recording medium is interrupted, the address indicating a location of

45 data when the recording interruption occurred;

46   sequentially reading the data recorded on the recording in medium prior to the

47 recording interruption; and

48   restarting data recording on the recording medium based on the address stored in

49 the address memory.